



General

Guideline Title

Special treatment issues in non-small cell lung cancer: diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines.

Bibliographic Source(s)

Kozower BD, Lamer JM, Detterbeck FC, Jones DR. Special treatment issues in non-small cell lung cancer: diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Chest. 2013 May;143(5 Suppl):e369S-99S. [253 references] [PubMed](#)

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Shen KR, Meyers BF, Lamer JM, Jones DR, American College of Chest Physicians. Special treatment issues in lung cancer: ACCP evidence-based clinical practice guidelines (2nd edition). Chest. 2007 Sep;132(3 Suppl):290S-305S.

Recommendations

Major Recommendations

The grades of recommendation (1A–2C) and the approach to rating the quality of evidence are defined at the end of the "Major Recommendations" field.

Pancoast Tumor

In patients with a Pancoast tumor, it is recommended that a tissue diagnosis be obtained prior to the initiation of therapy (Grade 1C).

In patients with a Pancoast tumor being considered for curative-intent surgical resection, a magnetic resonance image (MRI) of the thoracic inlet and brachial plexus is recommended to characterize possible tumor invasion of vascular structures or the extradural space (Grade 1C).

In patients with a Pancoast tumor being considered for curative resection, invasive mediastinal staging and extrathoracic imaging (head computed tomography [CT]/MRI plus either whole-body positron emission tomography [PET] or abdominal CT plus bone scan) are recommended.

Involvement of mediastinal nodes and/or metastatic disease represent a contraindication to resection (Grade 1C).

In patients with a potentially resectable Pancoast tumor (and good performance status), it is suggested that preoperative concurrent chemoradiotherapy is given prior to resection (Grade 2B).

In patients undergoing resection of a Pancoast tumor, it is recommended that every effort be made to achieve a complete resection (Grade 1B).

In patients undergoing resection of a Pancoast tumor, it is suggested that the resection consist of a lobectomy (instead of a nonanatomic wedge resection), as well as the involved chest wall structures (Grade 2C).

In patients with an unresectable, but nonmetastatic, Pancoast tumor who have good performance status, definitive concurrent chemotherapy and radiotherapy is suggested (Grade 2C).

In patients with Pancoast tumors who are not candidates for curative-intent treatment, palliative radiotherapy is suggested (Grade 2B).

Tumors Invading the Chest Wall

In patients with a non-small cell lung cancer (NSCLC) invading the chest wall who are being considered for curative-intent surgical resection, invasive mediastinal staging and extrathoracic imaging (head CT/MRI plus either whole-body PET or abdominal CT plus bone scan) are suggested (Grade 2C).

In patients with an NSCLC invading the chest wall, involvement of mediastinal nodes and/or metastatic disease represents a contraindication to resection, and definitive chemoradiotherapy is suggested for these patients (Grade 2C).

At the time of resection of a tumor invading the chest wall, it is recommended that every effort be made to achieve a complete resection (Grade 1B).

T4 N0,1 M0 Tumors (Central Tumor with Direct Invasion)

In patients with a clinical T4 N0,1 M0 NSCLC being considered for curative resection, it is recommended that extrathoracic imaging (head CT/MRI plus either whole-body PET or abdominal CT plus bone scan) be undertaken (Grade 1C).

Remark: Metastatic disease represents a contraindication to resection.

In patients with a clinical T4 N0,1 M0 NSCLC without distant metastases being considered for curative resection, it is suggested that invasive mediastinal staging be undertaken. Involvement of mediastinal nodes represents a contraindication to primary resection (Grade 2C).

Remark: Preoperative chemotherapy and resection has resulted in long-term survival in experienced centers in patients with mediastinal nodal involvement.

In patients with a clinical T4 N0,1 M0 NSCLC being considered for curative resection, it is suggested that resection be undertaken only at a specialized center (Grade 2C).

Additional Nodules and Multiple Primary Lung Cancers

Second Primary Lung Cancer (SPLC)

In patients with two foci typical of a primary lung cancer (either proven or suspected, i.e., solid, spiculated masses), it is suggested that identification of these as SPLCs (either synchronous or metachronous) should be based on the judgment of a multidisciplinary team, taking into account clinical, radiologic, and (if available) cytologic/histologic features (Grade 2C).

Remark: The multidisciplinary team should include a thoracic radiologist, pulmonologist, thoracic surgeon, and pathologist.

In patients with two primary NSCLCs (synchronous or metachronous) being considered for curative surgical resection, invasive mediastinal staging and extrathoracic imaging (head CT/MRI plus either whole-body PET or abdominal CT plus bone scan) are recommended (Grade 1B).

Remark: Involvement of mediastinal nodes and/or metastatic disease represents a contraindication to resection.

In patients (not suspected of having a second focus of cancer) who are found intraoperatively to have a second cancer in a different lobe, resection of each lesion is suggested, provided the patient has adequate pulmonary reserve and there is no N2 nodal involvement (Grade 1C).

Multiple Tumor Nodules

T3 Same Lobe Additional Tumor Nodules

In patients with suspected or proven lung cancer and an additional (suspected) tumor nodule within the same lobe, it is recommended that no further diagnostic workup of the additional nodule is undertaken (Grade 1B).

In patients with an additional (suspected) tumor nodule within the same lobe as a suspected or proven primary lung cancer, it is recommended that evaluation of extrathoracic metastases and confirmation of the mediastinal node status should be carried out as dictated by the primary lung cancer

alone and not modified due to the presence of the additional lesion (Grade 1C).

In patients with NSCLC and an additional focus of cancer within the same lobe (and no mediastinal or distant metastases), resection via a lobectomy is the recommended treatment (Grade 1B).

T4 Ipsilateral Different Lobe Nodules

In patients with suspected or proven lung cancer and an ipsilateral different lobe nodule(s), it is recommended that the judgment of a multidisciplinary team should reasonably exclude the possibility that this represents a benign lesion or a synchronous primary lung cancer, taking into account clinical, radiologic, and (if available) cytologic/histologic features (Grade 1C).

Remark: The multidisciplinary team should include a thoracic radiologist, pulmonologist, thoracic surgeon, and pathologist at a minimum.

In patients with an ipsilateral different lobe tumor nodule(s), it is suggested that evaluation for possible extrathoracic metastases (e.g., PET and brain MRI/CT) should be carried out (Grade 2C).

Remark: The presence of distant metastases indicates the pulmonary nodule most likely represents metastatic (M1b) disease.

In patients with an ipsilateral different lobe tumor nodule(s), it is suggested that invasive evaluation to rule out mediastinal node involvement should be carried out (Grade 2C).

Remark: Such involvement rules out curative-intent treatment.

In patients with NSCLC and an ipsilateral different lobe tumor nodule(s) (and no mediastinal or distant metastases), resection of each lesion is recommended, provided the patient has adequate pulmonary reserve (Grade 1B).

M1a Contralateral Additional Tumor Nodules

In patients with a contralateral lobe tumor nodule(s), it is suggested that evaluation of extrathoracic metastases (e.g., PET and brain MRI/CT) and invasive evaluation to rule out mediastinal node involvement should be carried out (Grade 2C).

Remark: Such involvement rules out curative-intent treatment.

In patients with NSCLC and a contralateral lobe tumor nodule(s) (and no mediastinal or distant metastases), resection of each lesion is suggested, provided the patient has adequate pulmonary reserve (Grade 2C).

Multifocal Lung Cancer (MFLC)

In patients with multiple lesions that are at least partially ground glass and are suspected to be malignant, it is suggested that these are classified as MFLC (Grade 2C).

In patients with suspected or proven MFLC who have a negative clinical evaluation and normal mediastinum by CT, it is suggested that distant and mediastinal staging are not routinely necessary (Grade 2C).

In patients with suspected or proven MFLC, it is suggested that curative-intent treatment should be pursued (Grade 2C).

In patients with suspected or proven MFLC, it is suggested that sublobar resection of all lesions suspected of being malignant be performed, if feasible (Grade 2C).

Isolated Brain Metastasis

In patients with an isolated brain metastasis from NSCLC being considered for curative treatment, invasive mediastinal staging and extrathoracic imaging (either whole-body PET or abdominal CT plus bone scan) are suggested (Grade 2C).

Remark: Involvement of mediastinal nodes and/or metastatic disease represents a contraindication to curative-intent treatment.

In patients with no other sites of metastases and a *synchronous* resectable N0,1 primary NSCLC, resection or radiosurgical ablation of an isolated brain metastasis is recommended (as well as resection of the primary tumor) (Grade 1C).

In patients with no other sites of metastases and a previously completely resected primary NSCLC (*metachronous* presentation), resection or radiosurgical ablation of an isolated brain metastasis is recommended (Grade 1C).

In patients who have undergone a curative resection of an isolated brain metastasis, adjuvant whole-brain radiotherapy (WBRT) is suggested

(Grade 2B).

Remark: Adjuvant chemotherapy is reasonable in patients with a good performance status with the goal of decreasing the incidence of brain recurrences, although no studies have specifically addressed this.

In patients who have undergone a curative resection of an isolated brain metastasis, adjuvant chemotherapy is suggested (Grade 2B).

Remark: Adjuvant chemotherapy is reasonable in patients with a good performance status, although no studies have specifically addressed this.

Isolated Adrenal Metastasis

In patients with an isolated adrenal metastasis from NSCLC being considered for curative-intent surgical resection, invasive mediastinal staging and extrathoracic imaging (head CT/MRI plus either whole-body PET or abdominal CT plus bone scan) are suggested (Grade 2C).

Remark: Involvement of mediastinal nodes and/or other sites of distant metastases represent a contraindication to resection.

In patients with a *synchronous* resectable N0,1 primary NSCLC and an isolated adrenal metastasis, with no other sites of metastases, resection of the primary tumor and the adrenal metastasis is recommended (Grade 1C).

In patients with no other sites of metastases and a previously completely resected primary NSCLC (*metachronous* presentation), resection of an isolated adrenal metastasis is recommended (Grade 1C).

In patients who have undergone a curative resection of an isolated adrenal metastasis, adjuvant chemotherapy is suggested (Grade 2B).

Remark: Adjuvant chemotherapy is reasonable in patients with a good performance status, although no studies have specifically addressed this.

Definitions:

Strength of the Recommendations Grading System

Grade of Recommendation	Benefit vs. Risk and Burdens	Methodologic Quality of Supporting Evidence	Implications
Strong recommendation, high-quality evidence, Grade 1A	Benefits clearly outweigh risk and burdens or vice versa	Consistent evidence from randomized controlled trials (RCTs) without important limitations or exceptionally strong evidence from observational studies	Recommendation can apply to most patients in most circumstances. Further research is very unlikely to change confidence in the estimate of effect
Strong recommendation, moderate-quality evidence, Grade 1B	Benefits clearly outweigh risk and burdens or vice versa	Evidence from RCTs with important limitations (inconsistent results, methodologic flaws, indirect or imprecise), or very strong evidence from observational studies	Recommendation can apply to most patients in most circumstances. Higher quality research may well have an important impact on confidence in the estimate of effect and may change the estimate
Strong recommendation, low- or very-low-quality evidence, Grade 1C	Benefits clearly outweigh risk and burdens or vice versa	Evidence for at least one critical outcome from observational studies, case series, or from RCTs with serious flaws or indirect evidence	Recommendation can apply to most patients in many circumstances. Higher-quality research is likely to have an important impact on confidence in the estimate of effect and may well change the estimate
Weak recommendation, high-quality evidence, Grade 2A	Benefits closely balanced with risks and burden	Consistent evidence from RCTs without important limitations or exceptionally strong evidence from observational studies	The best action may differ depending on circumstances or patient's or societal values. Further research is very unlikely to change confidence in the estimate of effect
Weak recommendation, moderate-quality evidence, Grade 2B	Benefits closely balanced with risks and burden	Evidence from RCTs with important limitations (inconsistent results, methodologic flaws, indirect or imprecise) or very strong evidence from observational studies	Best action may differ depending on circumstances or patient's or societal values. Higher-quality research may well have an important impact on confidence in the estimate of effect and may change the estimate
Weak recommendation, low- or very-low-quality evidence,	Uncertainty in the estimates of benefits, risks, and burden; benefits, risk, and	Evidence for at least one critical outcome from observational studies, case series, or RCTs, with serious flaws or indirect evidence	Other alternatives may be equally reasonable. Higher-quality research is likely to have an important impact on confidence in the estimate of effect and may well change the estimate

Grade 2C Grade of Recommendation	burden may be closely balanced Benefit vs. Risk and Burdens	Methodologic Quality of Supporting Evidence	Implications

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Non-small cell lung cancer (NSCLC) that requires special considerations, including

- Pancoast tumors
- Tumors invading chest wall
- Central T4 N0,1 M0 tumors
- Second primary lung cancer
- Additional tumor nodules in the same lobe (T3_{Satell})
- Ipsilateral different lobe tumor nodules (T4_{Ipsi Nod})
- Contralateral lobe tumor nodules (M1a_{Contr Nod})
- Multifocal lung cancer
- Isolated brain metastasis
- Isolated adrenal metastasis

Guideline Category

Management

Treatment

Clinical Specialty

Family Practice

Internal Medicine

Oncology

Pulmonary Medicine

Radiation Oncology

Thoracic Surgery

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Health Care Providers

Nurses

Patients

Physicians

Psychologists/Non-physician Behavioral Health Clinicians

Social Workers

Guideline Objective(s)

- To inform the clinical decisions that must be jointly made by physicians and patients in developing diagnostic, treatment, and management plans so that they can enhance the benefits and reduce the harms associated with various options
- To update the second edition and address patients with particular forms of non-small cell lung cancer (NSCLC) that require special considerations

Target Population

Patients with non-small cell lung cancers (NSCLC) that require special considerations

Interventions and Practices Considered

1. Pancoast tumors
 - Tissue diagnosis prior to therapy
 - Magnetic resonance imaging (MRI) of thoracic inlet and brachial plexus
 - Invasive mediastinal staging and extrathoracic imaging (head computed tomography [CT]/MRI plus either whole-body positron emission tomography [PET] or abdominal CT plus bone scan)
 - Concurrent chemoradiotherapy
 - Complete resection (lobectomy including removal of involved chest wall structures)
 - Palliative radiotherapy
2. Tumors that invade the chest wall
 - Invasive mediastinal staging and extrathoracic imaging (head CT/MRI plus either whole-body PET or abdominal CT plus bone scan)
 - Chemoradiotherapy if surgical resection is contraindicated
 - Achieve complete resection if resection is indicated
3. T4 N0,1 M0 tumors
 - Extrathoracic imaging (head CT/MRI plus either whole-body PET or abdominal CT plus bone scan)
 - Invasive mediastinal staging
 - Resection at a specialized center
4. Additional nodules and multiple primary lung cancers
 - Identification of cancers by a multidisciplinary team
 - Invasive mediastinal staging and extrathoracic imaging (head CT/MRI plus either whole-body PET or abdominal CT plus bone scan)
 - Resection
 - Confirmation of mediastinal node status
 - Evaluation of extrathoracic metastases (CT/PET)
5. Isolated brain metastases
 - Invasive mediastinal staging and extrathoracic imaging (head CT/MRI plus either whole-body PET or abdominal CT plus bone scan)
 - Resection or radiosurgical ablation
 - Adjuvant whole-brain radiotherapy (WBRT)
 - Adjuvant chemotherapy
6. Isolated adrenal metastasis
 - Invasive mediastinal staging and extrathoracic imaging (head CT/MRI plus either whole-body PET or abdominal CT plus bone scan)
 - Resection of primary tumor and adrenal metastasis
 - Adjuvant chemotherapy

Major Outcomes Considered

- Surgical outcomes for patients with carinal involvement
- 5-year survival
- Palliation of pain

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

A formal meta-analysis was not available for any of the particular forms of non-small cell lung cancer (NSCLC) that are the subject of this article. Clinical guidelines from other organizations were available and are discussed. These involve primarily consensus opinion statements. However, a systematic review of the most recent literature in each of these areas was performed. Using Ovid MEDLINE, each subject area was searched (details available on request), and articles published since the previous American College of Chest Physicians (ACCP) Lung Cancer Guidelines from January 1, 2007, to January 1, 2012, were included. Articles were included if they reported on the key outcome measures in a sufficient sample size as outlined in each table herein. The recommendations in this article are based on the data from this review. In particular, the committee carefully reviewed the published literature produced since the second edition of these guidelines published in 2007.

Although each subject area in this article was searched systematically, the following questions were specifically identified a priori (see Table S1 in the supporting data [see the "Availability of Companion Documents" field]):

1. In patients with a Pancoast tumor, does induction chemoradiation therapy improve complete resection rates and improve 5-year survival compared with preoperative radiotherapy or no preoperative therapy (with or without adjuvant therapy)?
2. Do patients with T3_{Satell} tumors have similar survival to those with T4_{Ipsi Nod} disease?
3. How do we determine whether a contralateral tumor lesion is a synchronous primary NSCLC or an M1a_{Contr Nod} lesion, and does it matter?

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Not Given)

Rating Scheme for the Strength of the Evidence

Not stated

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Assessment of Study Quality

Systematic reviews and meta-analyses were assessed using Documentation and Appraisal Review Tool (DART) (R. L. Diekemper; B. K. Ireland, MD; and L. R. Merz, PhD, MPH, DART, unpublished data, 2012), which was developed as an improved alternative to the existing tools for use in a clinical setting. However, this tool has been adopted for use in American College of Chest Physicians (ACCP) guidelines and consensus statements since 2011.

Quality was assessed for each study as well as for the body of relevant evidence. Based on the population, intervention, comparator, and outcome (PICO) questions and volume of available literature, multiple study designs were included in the systematic reviews of the literature. Randomized controlled trials (RCTs) primarily indicate benefits, but whenever observational studies met inclusion criteria they were often helpful in identifying harms. Observational studies were also examined when RCTs were not available to answer a particular PICO question. Allowing for multiple study designs resulted in the need for multiple quality assessment tools. Tools were chosen for assessing RCTs, observational studies, and diagnostic studies. The quality assessment tool for RCTs (R. L. Diekemper, B. K. Ireland, and L. R. Merz, unpublished data, 2012) was used for assessing the quality of RCTs, and a tool developed by the committee of the ninth edition of the Antithrombotics Guidelines was used for assessing the quality of observational studies. Diagnostic studies were assessed using the Quality Assessment Tool for Diagnostic Accuracy Studies (QUADAS).

Meta-analyses

If a recently published good-quality meta-analysis was available, then it was used to inform the recommendations. When a good-quality meta-analysis was not available, guideline authors were encouraged to perform their own meta-analyses. Meta-analyses were performed when the data were fairly homogeneous. If a study was deemed poor quality, then it was not included in the pooled analysis. Heterogeneity of the pooled results was assessed using a χ^2 test and Higgins I^2 , and a forest plot was examined for consistency of the results. The random effects model was chosen a priori as the appropriate model for pooling the data because it accounts for heterogeneity among the included studies. Results from the meta-analyses are available in the supplementary materials that can be downloaded from the Journal website under the corresponding article in the table of contents.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Panel Composition and Responsibilities

A call for applications to serve on the 3rd edition of the American College of Chest Physicians (ACCP) Lung Cancer Guidelines (LC III) panel was put forth to the ACCP membership, to past panelists, and to other organizations that have previously endorsed earlier editions of these guidelines or appointed representatives to serve on those panels. Guiding the team was the LC III Executive Committee, composed of a Panel Chair, Vice Chair, Liaison to the Guidelines Oversight Committee (GOC), and two staff members, one serving as an adviser and the other as the lead methodologist. The GOC appointed the Liaison and the Chair, who was required to be free of conflicts of interest (COI). This Executive Committee provided general oversight and guidance; multiple reviews of research questions, article outlines, manuscripts, evidence tables, and other supporting documents; and facilitation of the final conference discussions and voting. As the scope was defined, content experts in each major area were identified to serve as topic editors and nominated by the Panel Chair to be advanced to the GOC for the requisite qualifications and COI review and approval process. These topic editors organized their research and writing teams, oversaw the work of the individual members, edited separate contributions into synthesized manuscripts, presented evidence at the final conference, and managed any of their committee members who were approved with management stipulations relevant to their COIs.

Each topic editor was initially charged with proposing individuals to support their topic committees with expertise in the content area and/or methodology. With the Chair's approval, these individuals were nominated for GOC reviews for COI and expertise. In some cases, GOC staff helped to locate additional methodologic support when it was determined to be necessary for various article committees. This resulted in an international panel of >100 multidisciplinary experts across 24 articles representing the fields of pulmonary medicine, critical care medicine, thoracic surgery, medical and radiation oncology, pathology, integrative medicine, primary care, health-care research, guidelines methodology, and epidemiology. Nineteen international organizations that are also dedicated to advancing research and practice in the area of lung cancer were

invited to appoint representatives to this guideline project as adjunct participants. These individuals, unless already approved panelists, were not considered full voting members of the panel, since they had not been through the same ACCP COI review, but were included at the final conference, participated fully in the discussions, and provided external review and feedback on the manuscripts and supporting documentation.

Formulating the Recommendations

In most cases the topic editors, along with the other completely non-conflicted members of the article committee, formulated the recommendations. The summarized evidence tables and profiles (where profiles existed) provided the foundation for the recommendations. In formulating the recommendations, panelists considered not only the body of evidence but also the balance between the benefits and harms and considerations of other factors, such as cost or resource availability considerations and patient values and preferences, which might vary widely for some recommendations. These additional considerations are described in a Remarks section, which appears just below the relevant recommendation in the publication, each time the recommendation appears.

Grading the Recommendations

Recommendations that are strong must be differentiated from those that are weak or weaker. Thus, the ACCP Grading System was used (see the "Rating Scheme for the Strength of the Recommendations" field), and the wording of the recommendations is explicit. This grading system has been used since 2005 and is based on two dimensions: the balance of benefits to harms and the quality of the evidence base. If the benefits clearly outweigh the harms or the harms clearly outweigh the benefits, the strength of the recommendation is considered strong and graded as a 1. In most cases, when there is strong confidence that the benefits outweigh the harms, most patients would choose the intervention endorsed in that recommendation. However, when the tradeoffs between desirable and undesirable consequences are not as clear, variability in patient preferences and values often becomes germane to the decision-making conversation.

Weak recommendations are those for which the benefits and harms are more equally balanced, and thus a clear choice is not as obvious; these are graded with a 2. Strong recommendations are phrased, "the panel recommends," whereas weak recommendations are phrased "the panel suggests." Accompanying these indications of the strength of a recommendation is a letter score (A, B, or C) representing the grading of the body of relevant literature.

In grading the quality of the evidence, RCTs start with a high score but might be downgraded to moderate or even low based on the following criteria: limitations in the study design or conduct of the trial, imprecision, indirectness relative to the specifics of the PICO question, inconsistency in the results, and risk of reporting bias. Observational studies, on the other hand, start off as low-level evidence but can be upgraded to moderate or even high if exceptionally large and consistent treatment effects increase confidence in the findings, especially if there is a strong dose-response gradient.

The final grades are combinations reflecting the strength of the recommendation and the quality of the evidence. Strong recommendations with high quality evidence, grade of 1A, are less common than in past editions of these guidelines, since the evidence is assessed with greater rigor for most topics, and few studies without important limitations are available.

However, recommendations that do attain this score are those for which the panel could state with confidence that new studies would be unlikely to change the direction of the effect. These recommendations apply to most patients in most circumstances. But as the grades decline, patient values and preferences likely would play an increasingly greater role in determining the best treatments or interventions for each patient.

The Final Conference

As the evidence reviews were completed and the tables and profiles prepared, the manuscripts and recommendations were drafted. Members of the article committees convened by phone or e-mail to discuss the evidence and work on drafting and grading the recommendations. These discussions generally resulted in agreement on both the quality of the evidence and strength of the recommendations.

The manuscripts and supporting tables were then reviewed by members of the Executive Committee and, after several iterations, the revised versions were shared among all panelists and the representatives of invited organizations in advance of the conference. The other panelists and representatives were asked not only to provide feedback but also to review the recommendations to identify any controversies. A recommendation was deemed to be controversial if at least one person disagreed with the wording or the grading, if there was controversy in practice, if there were wide variations in practice, or if at least one person asked that it be discussed among the broader panel and association representatives. These identified controversies composed the main agenda for the conference.

See the "Methodology for Development of Guidelines for Lung Cancer" (see the "Availability of Companion Documents" field) for more information.

Rating Scheme for the Strength of the Recommendations

Strength of the Recommendations Grading System

Grade of Recommendation	Benefit vs. Risk and Burdens	Methodologic Quality of Supporting Evidence	Implications
Strong recommendation, high-quality evidence, Grade 1A	Benefits clearly outweigh risk and burdens or vice versa	Consistent evidence from randomized controlled trials (RCTs) without important limitations or exceptionally strong evidence from observational studies	Recommendation can apply to most patients in most circumstances. Further research is very unlikely to change confidence in the estimate of effect
Strong recommendation, moderate-quality evidence, Grade 1B	Benefits clearly outweigh risk and burdens or vice versa	Evidence from RCTs with important limitations (inconsistent results, methodologic flaws, indirect or imprecise), or very strong evidence from observational studies	Recommendation can apply to most patients in most circumstances. Higher quality research may well have an important impact on confidence in the estimate of effect and may change the estimate
Strong recommendation, low- or very-low-quality evidence, Grade 1C	Benefits clearly outweigh risk and burdens or vice versa	Evidence for at least one critical outcome from observational studies, case series, or from RCTs with serious flaws or indirect evidence	Recommendation can apply to most patients in many circumstances. Higher-quality research is likely to have an important impact on confidence in the estimate of effect and may well change the estimate
Weak recommendation, high-quality evidence, Grade 2A	Benefits closely balanced with risks and burden	Consistent evidence from RCTs without important limitations or exceptionally strong evidence from observational studies	The best action may differ depending on circumstances or patient's or societal values. Further research is very unlikely to change confidence in the estimate of effect
Weak recommendation, moderate-quality evidence, Grade 2B	Benefits closely balanced with risks and burden	Evidence from RCTs with important limitations (inconsistent results, methodologic flaws, indirect or imprecise) or very strong evidence from observational studies	Best action may differ depending on circumstances or patient's or societal values. Higher-quality research may well have an important impact on confidence in the estimate of effect and may change the estimate
Weak recommendation, low- or very-low-quality evidence, Grade 2C	Uncertainty in the estimates of benefits, risks, and burden; benefits, risk, and burden may be closely balanced	Evidence for at least one critical outcome from observational studies, case series, or RCTs, with serious flaws or indirect evidence	Other alternatives may be equally reasonable. Higher-quality research is likely to have an important impact on confidence in the estimate of effect and may well change the estimate

Cost Analysis

American College of Chest Physicians (ACCP) guidelines include consideration of resources in recommendations under selected circumstances. If it is likely that resource considerations would impact the direction or strength of a recommendation, a search for cost-effectiveness studies may have been conducted. Most recommendations in these guidelines do not include a full assessment of resource considerations. However, they can be adapted to middle- and low-income countries using the ADAPTE strategies.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Internal and External Peer Review

Once Executive Committee approval was received, the articles were submitted to American College of Chest Physicians (ACCP) staff for several layers of review. All reviewers were required to undergo a full conflict of interest (COI) appraisal before being approved. In the first round of reviews, the Thoracic Oncology NetWork reviewed the content of the manuscripts and the members of the Guidelines Oversight Committee (GOC) assessed the manuscripts for adherence to the methodology and conformance with the evidence. The ACCP President also appointed members of the Board of Regents to evaluate the guidelines in depth. All comments were collated into spreadsheets to ensure that they were appropriately answered. GOC and board reviewers discussed each comment and determined which should be mandatory for the authors to amend and which were provided as suggestions for improvement. All reviews and comments were anonymous, and authors were required to respond to all mandatory issues either by revising the manuscripts or providing written justification explaining why they did not agree with the reviewers' comments.

The revised manuscripts were submitted for round II review, simultaneously with the Journal peer review. Once the GOC and board reviewers approved the manuscripts, the ACCP President, President Elect, President Elect Designee, and Immediate Past President reviewed the guidelines. Approval was granted pending confirmation from the Board of Regents, before submission to the journal for final review by the Journal Editor. In addition to this extensive review process, which included nearly 30 individual reviewers from the ACCP leadership, external organizations were provided with opportunities to provide feedback before, during, and just after the conference. This final version was submitted for consideration for endorsement to all of the invited organizations, whether or not they sent representatives to the conference. However, once the guidelines were approved by the ACCP Board of Regents, no further changes were accepted. Organizations that provided endorsements are listed in each article.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate treatment of patients with non-small cell lung cancers (NSCLC) that require special treatment

Potential Harms

False-positive or false-negative results of imaging

Contraindications

Contraindications

- In patients with Pancoast tumors or a non-small cell lung cancer (NSCLC) invading the chest wall, involvement of mediastinal nodes and/or metastatic disease represent a contraindication to resection, and definitive chemoradiotherapy is suggested for these patients.
- Involvement of mediastinal nodes represents a contraindication to primary resection in patients with a clinical T4 N0,1 M0 NSCLC without distant metastases.

Qualifying Statements

Qualifying Statements

- American College of Chest Physicians (ACCP) guidelines are intended for general information only, are not medical advice, and do not replace professional medical care and physician advice, which always should be sought for any medical condition. The complete disclaimer for this guideline can be accessed at the [CHEST Web site](#) .
- Although the ACCP is moving toward the production of evidence profiles for all guideline recommendations, there were many recommendations for which profiles were not developed, mostly because of resource constraints. When possible, methodologists created evidence profiles, and all panelists were educated on how to read and interpret them. The population, intervention, comparator, and outcome (PICO)-based systematic literature review process was followed for most recommendations, but there were some that could have benefited from meta-analyses.
- One limitation of all guidelines today is that they are not able to adequately address complex patients with multiple morbidities. This is largely because these patients are generally excluded from clinical trials and are often not included in observational studies. Since guidelines are reliant on evidence published in the peer-reviewed literature, the scientific foundation impedes the process of providing good guidance for these patients and is a limitation in these guidelines. Therefore, the ACCP encourages funding agencies to ensure that topics with limited evidence are addressed in future research.

Implementation of the Guideline

Description of Implementation Strategy

Dissemination and Implementation

These guidelines are widely disseminated through the *CHEST* journal publication, National Guideline Clearinghouse, and Guidelines International Network library. Additional clinical resources will soon be available to users of CHEST Evidence, an upcoming tool for searching the content of American College of Chest Physicians (ACCP) guidelines.

As the expanding research into diagnostic techniques and treatment options continues to evolve, the guidelines must be updated and kept current. This edition of the ACCP Lung Cancer Guidelines will be the last to be published as a complete collection, as the ACCP is now embarking on a new living guidelines model (LGM) for revising existing recommendations and developing new recommendations as the literature evolves. This will include a continual assessment of the currency of these recommendations relevant to new research studies as they are published. The review cycle for the ACCP Lung Cancer Guidelines will begin 1 year after publication unless the content experts who monitor the literature bring a recommendation or set of related recommendations to the attention of the Guideline oversight Committee (GOC), suggesting that those recommendations are in need of updating sooner. The new LGM will permit a more nimble approach to guideline development but also requires a point-of-care accessible vehicle, CHEST Evidence, for the users to readily search for the most current version. These features will be described in greater detail in upcoming publications. As a step in this direction, these guidelines will be published primarily online with a printed version of the Executive Summary, containing all of the recommendations, the introduction, and this article on methodology. All narratives for each article with their supporting tables, figures, and algorithms will be available online at journal.publications.chestnet.org .

Implementation Tools

Mobile Device Resources

Patient Resources

Quick Reference Guides/Physician Guides

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Kozower BD, Lamer JM, Detterbeck FC, Jones DR. Special treatment issues in non-small cell lung cancer: diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Chest. 2013 May;143(5 Suppl):e369S-99S. [253 references] [PubMed](#)

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2003 Jan (revised 2013 May)

Guideline Developer(s)

American College of Chest Physicians - Medical Specialty Society

Source(s) of Funding

- The development of this guideline was supported primarily by the American College of Chest Physicians (ACCP). The lung cancer guidelines conference was supported in part by a grant from the Lung Cancer Research Foundation. The publication and dissemination of the guidelines was supported in part by a 2009 independent educational grant from Boehringer Ingelheim Pharmaceuticals, Inc.
- Role of sponsors: The ACCP was solely responsible for the development of these guidelines. The remaining supporters played no role in the development process. External supporting organizations cannot recommend panelists or topics, nor are they allowed prepublication access to the manuscripts and recommendations. Further details on the Conflict of Interest (COI) Policy are available online at <http://chestnet.org> .
- See the methodology companion (see the "Availability of Companion Documents" field) for a complete discussion of the source of funding for this guideline.

Guideline Committee

American College of Chest Physicians (ACCP) Expert Panel on Lung Cancer Guidelines

Composition of Group That Authored the Guideline

Financial Disclosures/Conflicts of Interest

- Conflicts of Interest (COI) grids reflecting the conflicts of interest that were current as of the date of the conference and voting are posted in the online supplementary materials.
- Financial/nonfinancial disclosures: The authors have reported to *CHEST* that no potential conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article.
- See the methodology companion (see the "Availability of Companion Documents" field) for a complete discussion of the conflict of interest procedures and requirements for the guideline panel.

Guideline Endorser(s)

American Association for Bronchology and Interventional Pulmonology - Medical Specialty Society

European Society of Thoracic Surgeons - Professional Association

Oncology Nursing Society - Professional Association

Society of Thoracic Surgeons - Medical Specialty Society

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Shen KR, Meyers BF, Lamer JM, Jones DR, American College of Chest Physicians. Special treatment issues in lung cancer: ACCP evidence-based clinical practice guidelines (2nd edition). *Chest*. 2007 Sep;132(3 Suppl):290S-305S.

Guideline Availability

Electronic copies: Available to subscribers of [Chest - The Cardiopulmonary and Critical Care Journal](#) . Also available to Chest subscribers through the [Chest app](#) for iPhone and iPad.

Print copies: Available from the American College of Chest Physicians, Products and Registration Division, 3300 Dundee Road, Northbrook IL 60062-2348.

Availability of Companion Documents

The following are available:

- Special treatment issues in non-small cell lung cancer: diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Supporting data. Electronic copies: Available to subscribers of [Chest - The Cardiopulmonary and Critical Care Journal](#) .
- Detterbeck FC, Zelman Lewis S, Diekemper R, Addrizzo-Harris D, Alberts MW. Diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines. Executive summary. *Chest* 2013 May;143(5 Suppl):7S-37S. Electronic copies: Available from the [Chest - The Cardiopulmonary and Critical Care Journal Web site](#) .
- Alberts WM. Introduction to the third edition: diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines. *Chest* 2013 May;143(5 Suppl):38S-40S. Electronic copies: Available from the [Chest - The Cardiopulmonary and Critical Care Journal Web site](#) .
- Zelman Lewis S, Diekemper R, Addrizzo-Harris DJ. Methodology for development of guidelines for lung cancer: diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines. *Chest* 2013 May;143(5 Suppl):41S-e50S. Electronic copies: Available from the [Chest - The Cardiopulmonary and Critical Care Journal Web site](#)

- Alberg AJ, Brock MV, Ford JG, Samet JM, Spivack SD. Epidemiology of lung cancer: diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines. Chest 2013 May;143(5 Suppl):e1S-e29S. Electronic copies: Available to subscribers of [Chest - The Cardiopulmonary and Critical Care Journal](#) .
- Nana-Sinkham SP, Powell CA. Molecular biology of lung cancer: diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines. Chest 2013 May;143(5 Suppl):e30S-e39S. Electronic copies: Available to subscribers of [Chest - The Cardiopulmonary and Critical Care Journal](#) .
- Detterbeck FC, Postmus PE, Tanoue LT. The stage classification of lung cancer: diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines. Chest 2013 May;143(5 Suppl):e191S-e210S. Electronic copies: Available to subscribers of [Chest - The Cardiopulmonary and Critical Care Journal](#) .

Print copies: Available from the American College of Chest Physicians, Products and Registration Division, 3300 Dundee Road, Northbrook IL 60062-2348.

The following is also available:

- Highlights of the ACCP diagnosis and management of lung cancer guidelines, 3rd ed. Podcast. Available from the [Chest - The Cardiopulmonary and Critical Care Journal Web site](#) .

A lung cancer staging calculator is available from the [Staging Lung Cancer Web site](#) .

Patient Resources

The following are available:

- Lung cancer: understanding the diagnosis. Northbrook (IL): American College of Chest Physicians; 2010. 7 p. Electronic copies: Available in Portable Document Format (PDF) from the [OneBreath.org Web site](#) .
- Understanding non-small cell lung cancer. A guide for the patient. Northbrook (IL): American College of Chest Physicians; 2010. 13 p. Electronic copies: Available in PDF from the [OneBreath.org Web site](#) .

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

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